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ABSTRACT

The purpose of this study was to assess the validity of the Verbal Ability and Quantitative Ability scores of the Graduate Record Aptitude Test (GRE-V, GRE-Q) and undergraduate grade point average (GPA) as predictors of graduate grade point average in the Master of Arts degree program at Northern Michigan University. The subjects were 120 students who had completed the GRE between 1967 and 1970 and had completed eight hours or more of graduate work. The findings indicated that the undergraduate GPA was the best single predictor of graduate academic performance. The addition of GRE scores to undergraduate GPA in an optimally weighted equation did not add significantly to the predicion of the graduate GPA, although the GRE-V was found to be significantly correlated with graduate GPA when used independently of undergraduate GPA. (AF)

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# Predictive Validity of the Graduate Record Aptitude Test

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# Predictive Validity of the Graduate Record Aptitude Test

The purpose of this study was to assess the validity of the Verbal Ability and Quantitative Ability scores of the Graduate Record Aptitude Test (GRE) and undergraduate grade point average as predictors of graduate grade point average in the Master of Arts degree program at Northern Michigan University.

The subjects were 120 students who had completed the GRE between 1967 and 1970 and had completed eight hours or more of graduate study. Ninety-five of the students were enrolled in an education curriculum (elementary, secondary, administration, or guidance and counseling); the remaining 25 were scattered among six other major fields. The undergraduate GPA, but not the GRE had been used as a criterion for admission to graduate studies.

## Results

Descriptive statistics and zero order correlation coefficients are shown in Table 1. For the sample of Northern students the GRE-V and Q mean scores were 437 and 453. Normative data from the test publisher shows that for all candidates for graduate study and graduate students who took the GRE from May 1966 through April 1969, the mean scores were 516 (standard Deviation 129) and 524 (standard deviation 138) for the GRE-V and Q respectively. Thus, the means for Northern students were slightly more than half a standard deviation below the national average. The national norms are based upon the performance of candidates and students at institutions granting doctoral degrees as well as those which grant only the M. A. degree. Separate norms for institutions granting the M. A. only, are not available.

The best single predictor of graduate GPA was undergraduate GPA (r=. 37). This was followed by GRE-V (r=. 29); the correlation with GRE-Q (. 07) was not

significantly different from zero. The multiple correlation of undergraduate GPA, GRE-V and GRE-Q with graduate GPA was .41; when GRE-Q was dropped from the equation the multiple R. was .40. Neither of these multiple R's was significantly greater than the correlation obtained between undergraduate and graduate GPA alone ($F=1.73$ and $2.51$, $P>.05$). In other words, graduate GPA can be predicted about as well from undergraduate GPA alone as from a regression equation based upon undergraduate GPA and GRE scores.

TABLE 1. Mean, Standard Deviation and Correlation Coefficient Between Undergraduate GPA and GRE and Graduate GPA.

| Variable | Mean | SD | r |
|---|---|---|---|
| U GPA | 2.69 | .43 | .37 |
| GRE-V | 437 | 103 | .29 |
| GRE-Q | 453 | 106 | .07 |
| G GPA | 3.35 | .42 | |

A percentage distribution of graduate GPA's associated with undergraduate GPA's is given in Table 2. Similar information based upon GRE-V scores is given in Table 3. From these tables one can see in a more direct way than from the correlation coefficients that undergraduate GPA and GRE-V scores are related to graduate GPA, although the relation is far from a perfect one. Table 2 shows, for example, that all students with an undergraduate GPA of 3.00 or better had achieved a 3.00 or better average in their graduate studies; but 79% of those who had entered with an average of less than 2.5 had also achieved a graduate average of 3.00 or better. Similarly, those students with high GRE-V scores tended to have higher graduate averages than those with lower scores, but most students with relatively low scores also appeared to be making satisfactory progress in their graduate studies.

TABLE 2. Percentage Distribution of Graduate Grade Point Averages Associated With Undergraduate Grade Point Averages.

| | Graduate GPA | | | | | | Total | |
|---|---|---|---|---|---|---|---|---|
| Undergraduate GPA | < 2.50 | 2.50 - 2.74 | 2.75 - 2.99 | 3.00 - 3.24 | 3.25 - 3.49 | 3.50 - 4.00 | N | % |
| 3.50 - 4.00 | | | | | | 100% | 5 | 4.2 |
| 3.25 - 3.49 | | | | 25% | 25% | 50% | 12 | 10.0 |
| 3.00 - 3.24 | | | | 9% | 36% | 55% | 11 | 9.2 |
| 2.75 - 2.99 | | | 6% | 18% | 23% | 53% | 17 | 14.2 |
| 2.50 - 2.74 | 3% | | 7% | 32% | 16% | 42% | 31 | 25.8 |
| Less than 2.50 | 7% | 9% | 5% | 29% | 23% | 27% | 44 | 36.7 |
| TOTAL N | 4 | 4 | 5 | 30 | 26 | 51 | 120 | 100 |
| TOTAL % | 3.3 | 3.3 | 4.2 | 25.0 | 21.7 | 42.5 | 100 | |

TABLE 3. Percentage Distribution of Graduate Grade Point Averages Associated with GRE - Verbal Scores

| | Graduate GPA | | | | | | Total | |
|---|---|---|---|---|---|---|---|---|
| GRE - V | < 2.50 | 2.50 - 2.74 | 2.75 - 2.99 | 3.00 - 3.24 | 3.25 - 3.49 | 3.50 - 4.00 | N | % |
| 700- | | | | | | 100% | 1 | .8 |
| 600-699 | | 17% | | | 33% | 50% | 6 | 5.0 |
| 500-599 | | | 4% | 25% | 21% | 50% | 28 | 23.3 |
| 400-499 | | 3% | 3% | 19% | 27% | 49% | 37 | 30.8 |
| 300-399 | 8% | 5% | 8% | 33% | 18% | 28% | 39 | 32.5 |
| 200-299 | 11% | | | 33% | 11% | 44% | 9 | 7.5 |
| TOTAL N | 4 | 4 | 5 | 30 | 26 | 51 | 120 | 100 |
| TOTAL % | 3.3 | 3.3 | 4.2 | 25.0 | 21.7 | 42.5 | 100 | |

## Conclusions

The present practice at Northern is to admit students to graduate study on the basis of their prior academic record. This practice appears to be quite effective since only a small number of those admitted were found to have graduate GPA's less than the minimum required for graduation.

In this study, as in an earlier study of success in graduate work at Northern,* the undergraduate GPA was found to be the best single predictor of graduate academic performance. The addition of GRE scores to undergraduate GPA in an optimally weighted equation did not add significantly to the prediction of graduate GPA.

Although the GRE Aptitude Test does not seem to add significantly to the undergraduate GPA in the prediction of graduate GPA, the Verbal Ability Test (but not the Quantitative Ability Test) was found to be significantly correlated with graduate GPA when used independently of undergraduate GPA. In view of this relationship there may be some exceptional cases in which the GRE-V would be a useful predictor of graduate performance: for example, in instances where an applicant may have superior academic ability but for lack of motivation or other reasons did not achieve well as an undergraduate, or in rare instance where an undergraduate record is not available. It seems unlikely, however, that these exceptional cases warrant the routine administration of the GRE Aptitude Test to all students.

Most of the students who had taken the Aptitude Test had also taken one of the advanced tests, but the number who had taken any one of the tests was not sufficient to make a valid assessment of the relationship of scores to graduate achievement. It is recommended that such an assessment be made at a later time.

*Prediction of Success In Graduate Studies. OIR, June 1966.